Qu	Part	Marking guidance	Total marks
01	1	**1 mark for AO2 (apply)** 31 // 2^5-1;	1
01	2	**2 marks for AO2 (apply)** 24 000 000;; If incorrect answer is given then maximum of 1 mark for working. • 3 000 000//3*1000*1000 to calculate the correct number of bytes; • Multiplying an incorrect number of bytes by 8; • 3 000 000 * 8 with incorrect result;	2

Qu	Part	Marking guidance	Total marks
02	1	**Mark is for AO2 (apply)** 63 // 2^6 -1;	1
02	2	**2 marks for AO2 (apply)** 40 000;; If incorrect answer is given then **maximum of 1 mark** for working: • 5000; • multiplying by 8; • multiplying by 1000;	2

Qu	Part	Marking guidance	Total marks
03	1	**Mark is for AO1 (recall)** **D** 16; **R.** if more than one lozenge shaded	1

Qu	Part	Marking guidance	Total marks
03	2	**2 marks for AO1 (understanding)** **B** Hexadecimal is easier for people to read than binary; **F** Hexadecimal takes less time to type than binary; **R.** if more than two lozenges shaded	2

Qu	Part	Marking guidance	Total marks
04	1	**Mark is for AO2 (apply)** 78;	1
04	2	**All marks AO2 (apply)** 4; (This must be the left hand digit to gain the mark) E; (This must be the right hand digit to gain the mark) **Maximum 1 mark:** If final answer not correct.	2
04	3	**All marks AO1 (understanding)** (The answer is incorrect because) the number will (still) be represented using binary in a computer's memory; so it will take up the same amount of memory space;	2
04	4	**All marks AO1 (understanding)** (Shifting the bit pattern) three places; to the left; **Mark as follows:** **1 mark:** for correct direction of shift **1 mark:** for correct number of times to shift	2
04	5	**Mark is for AO2 (apply)** **B** F; **R.** If more than one lozenge shaded	1
04	6	**All marks AO1 (understanding)** **Advantages:** Can represent a wider range of characters; Can represent characters from a wider range of languages; Can represent characters used in scientific / mathematical / technical / specialist documents;	2

Qu	Part	Marking guidance	Total marks
04	7	**All marks AO2 (apply)** | Character	Huffman coding
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O	111
SPACE	10
B	00110	 **Mark as follows:** **1 mark** per correct response	3
04	8	**1 mark for AO1 (understanding) and 2 marks for AO2 (apply)** 7; * 26; = 182 182 – 83; = 99 **Mark as follows:** **1 mark for AO1:** identifying number of bits (7) used to represent an ASCII character; **1 mark for AO2:** multiplying by 26; **1 mark for AO2:** subtracting 83 from their answer for the number of bits used to represent the ASCII version of the text; **A.** Incorrectly calculated number of bits used for ASCII version **Maximum 1 mark:** for correct answer with no working out shown	3

Question	Part	Marking guidance	Total marks
05		**Mark is for AO1 (recall)** **B** All data and instructions are represented using binary; **R**. if more than one lozenge shaded	1